Service Quality Measurements
Measurement Detail

Data Retained Relating To CLEC Experience:	Data Retained Relating To ILEC Performance:
• Report Month • CLEC Ticket # • Ticket Submission Time • Ticket Submission Date • Ticket Completion Time • Trouble Resolution Time • Trouble Resolution Date • Service Type • WTN or CKTID (a unique identifier for elements combined in a service configuration) • Trouble Type • Geographic Scope	• Report Month • Average Restoral Interval • Standard Error for the Average Restoral Interval • Service Type • Trouble Type • Geographic Scope • Number of Tickets

Performance Standard in Absence of ILEC Results	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: 1. Out of Service conditions where dispatch is required: • ≥90% resolved within 4 hours • ≥95% resolved within 8 hours • ≥99% resolved within 16 hours 2. Out of Service conditions where no dispatch is required: • ≥85% resolved within 2 hours • ≥95% resolved within 3 hours • ≥99% resolved within 4 hours 3. ≥ all other troubles resolved within 24 hours

Function:	**Frequency of Repeat Troubles**
Business Implications:	Customers are keenly aware of the effectiveness of repair activities. First time troubles are sufficiently annoying and disruptive. When the trouble recurs within a short time frame, customers are even more dissatisfied. This measurement, when gathered for both the ILEC and CLEC, can establish whether or not CLECs are competitively disadvantaged (vis-à-vis the ILEC) as a result of experiencing more lingering customer troubles after the first repair attempt. Differences in this measure may indicate that the CLEC is receiving inferior maintenance support in the initial resolution of troubles or that ILEC-supplied network components are inferior.
Measurement Methodology:	**Repeat Trouble Rate = (Count of Trouble Reports Where More Than One Trouble Report Was Logged for the Same Service Access Line Within a Continuous 30 Day Period) / (Number of Reports in the Report Period) x 100** **For CLEC Results:** The repeat trouble rate measure is computed by accumulating the number of instances where a trouble ticket is submitted by a CLEC to the ILEC for a service arrangement that had at least one prior trouble ticket any time in the 30 calendar days preceding the creation of the current trouble ticket. The number of repeat troubles are accumulated for the reporting period by service type and trouble type. The count of repeat troubles, by service type, is divided by the count of initial trouble reports (by service type) received during the report period.

Service Quality Measurements
Measurement Detail

For ILEC Results: Same computation as for CLECs.

Other Clarifications and Qualification:

- Unbundled loops or UNE combinations involving and unbundled loops are considered a "service access line".
- A trouble is "resolved" when the ILEC issues notice to the CLEC that the Customer's service is restored to normal operating parameters.
- The "same service arrangement" means a trouble report being reported for the same telephone number or the same circuit identifier.
- The trouble resolution need not be identical between the repeated reports for the incident to be counted as a repeated trouble.

Reporting Dimensions:	Excluded Situations:
• Service Type (See Appendix A) • Company • Trouble Type • Geographic Scope	• Trouble tickets that are canceled at the CLEC request • ILEC trouble reports associated with administrative service • Instances where the CLEC or an ILEC customer requests that a ticket be "held open" for monitoring. • Subsequent trouble report(s) on a maintenance ticket that has (have) not been reported as resolved (or closed) • Trouble tickets created for tracking and/or monitoring requests for clarifying information (e.g., confirmation of customer ownership from CLEC support centers) • Tickets used to track referrals of misdirected calls.
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • CLEC Ticket # • Ticket Submission Time • Ticket Submission Date • Trouble Resolution Time • Trouble Resolution Date • Service Type • WTN or CKTID (a unique identifier for elements combined in a service configuration) • Trouble Type • Geographic Scope	• Report Month • % repeat trouble • Service Type • Trouble Type • Geographic Scope • Count of Troubles • Count of Repeat Troubles

Performance Standard in Absence of ILEC Results	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Less than 1% of trouble reports, by service type, experience a repeat report, regardless of the trouble disposition, within a 30-day period.

Service Quality Measurements
Measurement Detail

Function:	Frequency of Troubles
Business Implications:	Customers demand high quality service from their supplier, and differentials in supplier performance are quickly recognized throughout the market place. Poor performance is difficult to overcome and may require lengthy periods of sustained superb performance in order to re-establish a product image that has been tarnished. When measured for both the ILEC and CLEC and compared, this measure can be used to establish that CLECs are not competitively disadvantaged, compared to the ILEC, as a result of experiencing more frequent trouble reports. Disparity in this measure may indicate differences in the underlying quality of the network components supplied.
Measurement Methodology	**Trouble Rate = (Count of Initial & Repeated Trouble Reports in the Current Period) / (Number of Service Access Line in Service at End of the Report Period) x 100** **For CLEC Results:** The frequency of trouble metric is computed by accumulating, by standard service grouping and disposition and cause, the total number of maintenance tickets logged by a CLEC (with the ILEC) during the reporting period. The resulting number of tickets for each trouble type is accumulated within each standard service grouping, and trouble type is divided by the total number of "service access lines" existing for the CLEC at the end of the report period **For ILEC Results:** Same calculation as for the CLEC with the clarifications provided below. **Other Clarifications and Qualification:** • This measure is frequently a minimum service standard required by state commissions for monitoring ILEC performance.. • Unbundled loops or UNE combinations involving unbundled loops would be counted as a "service access line." • A trouble is "resolved" when the ILEC issues notice to the CLEC that the customer's service is restored to normal operating parameters. • See the "Time to Restore" measurement for a discussion of the ILEC equivalent of "trouble tickets" and "trouble logging". **% Troubles Within 30 Days of Installations and Other Order Activity = (Total Number of Trouble Tickets Associated With Lines That Had Service Order Activity Within 30 Days of the Trouble Report)/(Total Number of Orders Completed in the Report Period.** **For CLEC Results:** The results are computed by accumulating the number of trouble tickets submitted by a CLEC to the ILEC for a service arrangement that had at least one install or service order activity within the 30 calendar days preceding the creation of the current trouble ticket. The count of troubles is divided by the count of service-affecting orders completed by the ILEC for the CLEC during the report period. Non-parity results for % Trouble Rate within 30 Days of Install and Other Order Activity may require further reporting to determine root cause issues. For instance, reports on whether facilities provided on new installations tested to industry standard per interconnection contract, tariff or regulatory requirements may be required if results indicate a poorer performance of facilities and supporting network equipment provided to CLECs. ILECs also may need to cooperate with CLECs on comparative mechanized line testing (through respective ILEC and CLEC switches) of the transmission quality of ILEC loops versus CLEC unbundled loops obtained from the

Service Quality Measurements
Measurement Detail

	ILEC. Reporting dimensions of copper versus fiber deployment may show that CLEC install troubles result from a disparity in use of underlying transmission media for install of ILEC vs. CLEC facilities. The broadening of the measure to include more than just new installs will detect new service activations (hunt group changes, other feature additions) that cause troubles versus network transmission quality. **For ILEC Results:** Calculations are similar to those for CLECs.

Reporting Dimensions:	**Excluded Situations:**
• Standard Service Groupings (See Appendix A) • Company • Trouble Type • Geographic Scope	• Trouble tickets that are canceled at the CLEC request • ILEC trouble reports associated with administrative service • Instances where the CLEC or an ILEC customer requests a ticket be "held open" for monitoring • Trouble tickets created for tracking and/or monitoring requests for clarifying information (e.g., confirmation of customer ownership from CLEC support centers) • Tickets used to track referrals of misdirected calls.

Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • CLEC Ticket # • Ticket Submission Time • Ticket Submission Date • Trouble Resolution Time • Trouble Resolution Date • Service Type • WTN or CKTID (a unique identifier for elements combined in a service configuration) • Trouble Type • Geographic Scope	• Report Month • Service Type • Trouble Type • Geographic Scope • Number of Tickets • Number of Service Access Lines

Performance Standard in Absence of ILEC Results	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Less than 0.5% of lines, by service type, regardless of disposition and cause, experience a trouble in a report period for both the "trouble rate" and "percent troubles on new installations and order activity measures."

Function:	**Estimated Time To Restore Met**
Business Implications:	When customers experience trouble on working services, they naturally expect the services to be restored within the time frame promised. When such commitments are not fulfilled, an already unsatisfactory condition, in the customer's eyes, becomes even worse. When this measure is collected for the ILEC and CLEC and then compared, it can be used to establish that CLECs are receiving equally reliable (as compared to the ILEC operations) estimates of the time required to complete repairs.

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Measurement Methodology:	**% Customer Troubles Resolved Within Estimate = (Count of Customer Troubles Resolved By The Quoted Resolution Time and Date) / (Count of Customer Troubles Tickets Closed) x 100** **For CLEC Results:** The computation of the measure is as follows: The quoted repair completion date and time is compared to the actual repair date and time (ticket closure as defined in Time to Restore metric). In each instance where the actual repair date and time is on or before the initially provided estimated or quoted date and time to restore, the count of "troubles resolved within estimate" is incremented by one for the relevant "service type" and "trouble type." The resulting count is divided by the total number of troubles resolved (for the consistent service and trouble type), for the report period, in all instances where an estimated interval was provided or a standard interval existed. **For ILEC Results:** Same calculation as for CLEC. **Other Clarifications and Qualification:** The ILEC analog for this measure is derived by comparing the actual date and time of ILEC trouble ticket closure compared to the projected trouble clearance date and time established through the ILEC agent's on-line interaction with the ILEC's work management system, regardless of whether or not the ILEC currently quotes this information to its retail customer. • See the "Time To Restore" measurement for discussion of analogous ILEC maintenance activities (e.g., trouble resolution). • The "quoted" or "estimated" time to restore is the actual scheduled time projection returned by the ILEC work management system or the standardized repair interval that the ILEC uses for its own operations when equivalent service arrangements are involved. • A trouble is "resolved" when the ILEC issues notice to the CLEC that the customer's service is restored to normal operating parameters. • If the ILEC supplies only the estimated repair interval, then the estimated date and time of repair is determined by adding the repair interval to the date and time that the CLEC logged the repair request with the ILEC.

Reporting Dimensions:	Excluded Situations:
• Company • Service Type (See Appendix A) • Trouble Type • Geographic Scope	• Trouble tickets that are canceled at the CLEC request • ILEC trouble reports associated with administrative service • Instances where the CLEC or an ILEC customer requests a ticket be "held open" for monitoring • Trouble tickets created for tracking and/or monitoring requests for clarifying information (e.g., confirmation of customer ownership from CLEC support centers). • Tickets used to track referrals of misdirected calls.

Service Quality Measurements
Measurement Detail

Data Retained Relating To CLEC Experience:	Data Retained Relating To ILEC Performance:
• Report Month • CLEC Ticket # • Ticket Submission Time • Ticket Submission Date • Trouble Resolution Time • Trouble Resolution Date • Service Type • WTN or CKTID (a unique identifier for elements combined in a service configuration) • Trouble Type • Geographic Scope	• Report Month • Service Type • Trouble Type • Number of Troubles Resolved Within Estimate • Number of Troubles Resolved • Geographic Scope
Performance Standard in Absence of ILEC Results	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Greater than 99% of a maintenance problems, by service type and regardless of trouble type, are resolved by the quoted or estimated date and time of repair.

Service Quality Measurements
Measurement Detail

General (GE)

Function:	**Systems Availability**
Business Implications:	Access to essential business functionality, supported by the ILEC's OSS, is absolutely critical to CLEC operations. This measure monitors whether OSS functionality is at least as accessible to the CLEC as it is to the ILEC.
Measurement Methodology:	**% System Availability = [(Hours Functionality is Available to CLECs During Report Period) / (Number of Hours Functionality was Scheduled to be Available During the Period)] x 100** **For CLEC Results:** The total "number of hours functionality was scheduled to be available" is the cumulative number of hours (by date and time on a 24-hour clock) over which the ILEC planned to offer and support CLEC access to ILEC OSS functionality during the reporting period. The ILEC must provide a minimum advance notice of one reporting period regarding availability plans and such plans must be interface-specific. If scheduled availability is not provided with at least one report period's advance notice, then the default availability for the subsequent reporting period will be seven days per week, 24 hours per day. "Hours Functionality is Available" is the actual number of hours, during scheduled available time, that the ILEC gateway or interface is capable of accepting CLEC transactions or data files for processing in the gateway / interface and supporting OSS. The actual time available is divided by the scheduled time available and then multiplied by 100 to produce the "% system availability" measure. The "% system availability" measure is required for each unique interface type offered by the ILEC . **For ILEC Results:** Each OSS of the ILEC that is employed in the support of CLEC operations must first be identified by supported functional area (e.g., pre-ordering, ordering and provisioning, repair and maintenance and billing) with such mapping disclosed to the CLECs. The "available time" and "scheduled available time" is gathered for each of the identified ILEC OSS during the report period. The OSS function availability is computed based upon the weighted average availability of the subtending support OSS. That is, the available time for each OSS supporting a functional area is accumulated over the report period and then divided by the summation of the scheduled available time for those same supporting OSS. **Other Clarifications and Qualification:** • The ILEC analogs for this performance measure are the internal measures of system downtime (or up time) typically established between the ILEC Systems Management Organization and the client organizations. • OSS scheduled and available time may be utilized in the computation of more than one functional area. • Parity exists if the CLEC "% system availability" $\geq$ ILEC function availability for the functionality accessed by the CLEC. • "Capable of accepting" must have a meaning consistent with the ILEC definition down time, whether planned or unplanned, for internal ILEC systems having a comparable potential for customer impact. • Time is measured in hours and tenths of hours rounded to the nearest tenth of an hour.

Service Quality Measurements
Measurement Detail

Reporting Dimensions:	Excluded Situations:
• Company • Interface type offered for each functional area (See Appendix A) • Business Period (8:00AM to 8:00PM local time versus 8:00PM to 8:00AM , weekends and holidays)	• None
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • Interface Type (Identifies each unique interface available to CLECs) • Business Period • Scheduled Hour Available • Actual Hours Available	• Report Month • Functionality Identification • Business Period • % Availability of Functionality
Performance Standard in Absence of ILEC Results	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Less than 0.1% of unplanned down time, by interface type, during either business period.

Function:	**Center Responsiveness**
Business Implications:	When CLECs experience operational problems dealing with ILEC processes or interfaces, prompt responses by ILEC support centers are required to ensure that the CLEC customers are not adversely affected. Any delay in responding to CLEC center requests for support (e.g., request for a vanity telephone number) will, in turn, adversely impact the CLEC retail customer who may be holding on-line with the CLEC customer service agent. This measure monitors the ILEC's handling of support calls from CLECs to determine if responsiveness is at parity with the service the ILEC provides its retail customers seeking assistance (e.g., calls to the business office of the ILEC or call the ILEC to report service repair issues)..
Measurement Methodology	**Mean Time to Answer Calls = Σ [(Date and Time of Call Answer) - (Date and Time of Call Receipt)]/(Total Calls Answered by Center)** **Call Abandonment Rate = (Count of Calls Terminated Before Answer During the Reporting Period)/(Count of All Calls Placed in Queue During the Reporting Period)** **For CLEC Results:** Speed of answer (mean time to answer calls) and call abandonment rates are monitored through the call management technology utilized to distribute calls to ILEC agents supporting CLEC activities (i.e., call receipt personnel staffing ILEC support centers intended for CLEC use). Results for each measure are to be provided separately for each center handing CLEC inquiries. If centers deployed by the ILEC support multiple functions (e.g., both maintenance and provisioning) then the results for each function supported should be separately reported. Speed of Answer is determined by measuring and accumulating the elapsed time from the entry of a CLEC call into the ILEC call management system until the CLEC call

is transferred to the ILEC personnel assigned to handling CLEC calls for assistance. The elapsed time is measured in seconds and tenths of seconds rounded to the nearest tenth of a second. The accumulated elapsed time is divided by the count of calls transferred to ILEC agents for accuracy.

The Call Abandonment Rate is based on the number of calls received by the call distribution system of the ILEC center for the reporting period, regardless whether the call actually is transferred to ILEC personnel for processing. In addition, a count is accumulated of all calls that are subsequently terminated by the calling party or dropped due to equipment failure before transfer to the service agent for processing. The accumulated count of calls abandoned (terminated) is divided by the total count of calls received at the monitored center.

For ILEC Results:

Speed of Answer, as it relates to the ILEC, will be measured in an identical manner as described for the CLEC. The results for the ILEC business office operations and its repair bureau operations should be separately accumulated, computed and retained. If further distinctions are made or more discrete tracking is performed within the ILEC call receipt centers (e.g., by business and residence), then results should be reported at the lowest possible level of detail. Where call receipt for such operations are commingled and inseparable, then only a single result for each measure will be generated and serve as the comparative result for both the CLEC repair support and the CLEC provisioning support results.

Other Clarifications and Qualification:

- Speed of Answer minimum service standards, established in many states for business office, maintenance center, and/or operator services represent a similar ILEC measure and are derived from identical data (although the result displayed may be in comparison to a pre-established standard performance minimum).
- For ILEC and CLEC calls, an ILEC Agent answering and placing the caller on hold does not stop timing for purposes of the speed of answer interval.
- An interactive voice response (IVR) unit does not stop the timing for purposes of the speed of answer interval. For a call to be considered answered, the live ILEC Agent must handle the CLEC request.
- Results may be reported for the CLEC industry in aggregate to the extent that separate carrier-specific support centers are not provided. If separate centers are provided (either for an individual CLEC or a group of CLECs) then results should be gathered and supplied for each center and reported to the CLEC(s) based upon the center providing the specific CLEC's support.
- If the ILEC call management technology cannot measure speed of answer on a call-specific basis, then an alternate methodology that simulates speed of answer based upon the average time for component parts of the call (e.g., queue to IVR + IVR to queue + queue to agent answer) can be utilized by mutual consent of the ILEC and CLECs.

Reporting Dimensions:	Excluded Situations:
• Support Center Type (i.e., Center supporting CLEC maintenance, Center supporting CLEC provisioning, ILEC Center supporting retail customer maintenance calls, ILEC Center supporting business office inquiries)	• None

Service Quality Measurements
Measurement Detail

Data Retained Relating To CLEC Experience:	Data Retained Relating To ILEC Performance:
• Month • Center Identifier • Center Type • Mean Speed of Answer • Standard Error for Mean Speed of Answer • Count of Calls Answered • Count of Calls Abandoned	• Month • Center Identifier • Center Type • Mean Speed of Answer • Standard Error for Mean Speed of Answer • Count of Calls Answered • Count of Calls Abandoned
Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC's operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Greater than 95% of calls, by center, are answered within 20 seconds. • All calls are answered within 30 seconds.

Function:	**Average Response Interval for Real-time OSS Queries**
Business Implications:	As an initial step of establishing service, the customer service agent must determine such basic facts as availability of desired features, service delivery intervals, telephone numbers to be assigned, the customer's current products and features, qualification of the customer's loop for advanced digital services, and/or the validity of the street address. Likewise, maintenance customer service agents also must obtain real-time information in order to log customer troubles. In preordering and maintenance operations, this type of information is gathered from supporting OSS while the customer (or potential customer) is on the telephone with the customer service agent. Because pre-ordering activities are the first tangible contact a customer may have with a CLEC and because customers already may be dissatisfied when they report a trouble, it is critical that the CLEC be perceived as equally competent, knowledgeable and fast as and ILEC customer service agent. This measure is designed to monitor the time required for CLECs to obtain the pre-ordering and maintenance information necessary to establish and modify service and to log trouble reports. Comparisons to ILEC results indicate whether a CLEC has an equal opportunity to deliver a comparable customer experience when a retail customer calls the CLEC with a service inquiry.
Measurement Methodology:	**Average Response Interval = Σ| (Query Response Date & Time) - (Query Submission Date & Time) |/(Number of Queries Submitted in Reporting Period)** **For CLEC Results:** The response interval for each query is determined by computing the elapsed time from the ILEC receipt of a query from the CLEC, whether or not syntactically correct, to the time the ILEC returns the requested data (or reject notification) to the CLEC. Elapsed time is accumulated for each major query or transaction type, consistent with the specified reporting dimension, and then divided by the associated total number of queries received by the ILEC during the reporting period. **For ILEC Results:** The ILEC computation is identical to that for the CLEC with the clarifications noted below.

Service Quality Measurements
Measurement Detail

Other Clarifications and Qualification:

- The elapsed time for an ILEC query is measured from the point in time when the ILEC customer service agent submits the request for identical or similar information into the ILEC OSS until the time when the ILEC OSS returns the requested information to the ILEC customer service agent.
- As additional pre-ordering functionality is established by the industry, for example with respect to unbundled network elements, the reporting dimensions may be expanded.
- Elapsed time is measured in seconds and tenths of seconds rounded to the nearest tenth of a second.
- Elapsed time is to be measured through automated rather than manual monitoring and logging.
- The ILEC service agent entry of a request for pre-ordering or repair information (to the ILEC OSS) is considered to be the equivalent of the ILEC receipt of a query from the CLEC.
- The ILEC OSS return of information to the ILEC customer service agent, whether in hard copy or by display on a terminal, is considered equivalent to the return of requested information to the CLEC.

Reporting Dimensions:	Excluded Situations:
• Company • Interface Type • Pre-Ordering Query Types (See Appendix A) • Maintenance Query Types (See Appendix A)	• None

Data Retained Relating To CLEC Experience:	Data Retained Relating To ILEC Performance:
• Report Month • Interface Type (specific to pre-ordering or maintenance and repair) • Query Identifier (e.g., unique tracking number) • Query Receipt Date by ILEC • Query Receipt Time by ILEC • Query Type (per reporting dimension) • Response Return Date • Response Return Time	• Report Month • Interface Type • Query Type (per reporting dimension) • Mean response interval • Query Count • Standard error of the mean response interval

Performance Standard in Absence of ILEC Results

If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation, then result(s) related to the CLEC operation should meet or exceed the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete:

- Other than a query requesting 30 or more telephone numbers, the response interval will be less than or equal 2 seconds for 98% of the CLEC's queries received by the ILEC during the reporting period and no query will take longer than 5 seconds.
- For queries requesting 30 or more telephone numbers, the response interval is never to exceed two hours.

Service Quality Measurements
Measurement Detail

Billing (BI)

Function:	Timeliness Of Billing Record Delivery
Business Implications:	Regardless of whether the billing is to retail customers or to exchange access service customers, ILEC delivery of billing records must provide CLECs with the opportunity to deliver bills in as timely a manner as the ILEC; otherwise artificial competitive advantage will be realized by the ILEC. The "mean time to provide recorded usage" and the "mean time to deliver invoices" metrics monitor this situation.
Measurement Methodology	**Mean Time to Provide Recorded Usage Records =$\{ \Sigma[$(Data Set Transmission Date)-(Date of Message Recording)$]\}/$(Count of All Messages Transmitted in Reporting Period)** **Mean Time to Deliver Invoices = $\Sigma[$(Invoice Transmission Date)-(Date of Scheduled Bill Cycle Close)$]/$(Count of Invoices Transmitted in Reporting Period)** **For CLEC Results:** Usage Records: This measure captures the elapsed time between the recording of usage data generated either by CLEC retail customers or by CLEC access customers (by the AMA recording equipment associated with the ILEC switch) and the time when the data set, in a compliant format, is successfully transmitted to the CLEC. For each usage record, the calendar date and time of usage recording is compared to the calendar date and time of successful completion of data set transmission to the CLEC. The number of hours and tenths of hours elapsed between message recording and data set transmission will constitute the elapsed delivery time. The elapsed delivery time is accumulated for each usage record with the resulting total number of hours accumulated being divided by the number of complete usage records in all the data sets transmitted. Invoices: This measure captures the elapsed number of days between the scheduled close of a Bill Cycle and the ILEC's successful transmission of the associated invoice to the CLEC. For each invoice, the calendar date of the scheduled close of Bill Cycle is compared to the calendar date that successful invoice transmission to the CLEC completes. The number of calendar days elapsed between scheduled Bill Cycle close and completion of invoice transmission will constitute the elapsed delivery time. The elapsed delivery time is accumulated for each invoice with the resulting total number of days accumulated being divided by the number of complete invoices sent in the reporting period. **For ILEC Results:** Identical computations are made for the ILEC with the clarifications provided below. **Other Clarifications and Qualification:** • The elapsed time for delivery of ILEC usage records is measured from the time of message recording, as captured on the ILEC's AMA tape, to the time the AMA tape is converted to billing format (EMR format or equivalent). • The elapsed time for ILEC invoice delivery is measured from the scheduled close date of the retail customer bill cycle to the production of the customer bill in a format appropriate for delivery to retail customers regardless whether such a distribution occurs immediately.

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	• Mean time to deliver usage records is to be reported separately for end user usage and access related usage.
Reporting Dimensions:	**Excluded Situations:**
• Company Type of Record (end user or access) or Invoice (resale, UNE or interconnection services)	• Any usage records or invoices rejected due to formatting or content errors.
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Monthly • Record Type or Invoice Type • Mean Delivery Interval • Standard Error of Delivery Interval • Number of Messages or Invoices Delivered	• Report Month • Record Type or Invoice Type • Mean Delivery Interval • Standard Error of Delivery Interval • Number of Messages or Invoices Delivered
Performance Standard in Absence of ILEC Results	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • For usage records, separately for access usage and end user usage: 1. Greater than 99.9% records received within 24 hours or usage recording. 2. All usage is received within 48 hours of usage recording. • Greater than 99.95% of total service resale invoices received within 10 calendar days of bill cycle close. • Greater than 99.95% of wholesale (UNE) invoices received within 10 calendar days of bill cycle close.

Function:	**Accuracy of Billing Records**
Business Implications:	The accuracy of billing records affects the accuracy of the billing ultimately delivered to local service customers, whether retail local service or exchange access service customers. Billing for the elements from which CLEC services are constructed must be validated to assure that only correct charges are paid. This validation is necessary to assure that the cost structure for services is not inflated. Furthermore, charges such as "time and material" related charges may be on the invoice and need to be promptly passed on to customers (by CLECs) to avoid dissatisfaction regarding the timeliness of CLEC billing. Prompt billing of such charges also minimizes customer inquiries on late billing. Fair competition requires that the accuracy of billing records (both usage and invoices) delivered by the ILEC to the CLEC must provide CLECs with the opportunity to deliver bills at least as accurate as those delivered by the ILEC. Producing and comparing this measurement result for both the ILEC and CLEC allows a determination as to whether or not parity exists.
Measurement Methodology	**Invoice Accuracy = |(Number of Invoices Delivered in the Reporting Period that Have Complete Information, Reflect Accurate Calculations and are Properly Formatted) / Total Number of Invoices Issued in the Reporting Period)| x 100** **Usage Accuracy = |(Number of Usage Records Delivered in the Reporting Period That Reflected Complete Information Content and Proper Formatting) / (Total Number of Usage Records Transmitted)| x 100** **For CLEC Results:** The completeness of content, accuracy of information and conformance of formatting will be determined based upon the terms of the individual CLEC interconnection agreements with the ILECs. The ILEC will establish a quality

	control process that is disclosed to CLECs and that is no less rigorous than the most rigorous quality monitoring established in the ILEC billing service contracts for long distance service providers. The quality monitoring process must be disclosed in advance and process auditing must be permitted. The records and invoices delivered by the ILEC must simultaneously meet the standards relating to content, accuracy and formatting in order to be counted as accurate. Each of the above measurements, is expressed as a ratio (expressed as a percentage) of accurate records (or invoices) to the total records (or invoices) delivered. **For ILEC Results:** The computation for the ILEC is identical to that described for the CLEC. The usage accuracy determination is based upon comparison of the usage records, following format conversion to the EMR (or equivalent) format as compared to the internally established content and formatting requirements. Likewise, the accuracy measure for invoice delivery will be based upon a statistically reliable comparison of ILEC invoices to the content, calculation methodology and formatting standards of the ILEC. Separate comparisons are to be made for retail service invoices and access invoices with the results compared to wholesale (total service resale) and UNE invoices, respectively **Other Clarifications and Qualification:** • The usage accuracy measure identified here is similar to the type of measures that ILECs commonly institute in service contracts with long distance service suppliers who use ILEC billing services. • The wholesale invoice accuracy identified here is analogous to the measures contained within the Billing Quality Assurance Programs that the ILECs have with interchange carriers for monitoring access billing quality. If a sampling process is used to monitor accuracy, then the study results must be reconfirmed no less than quarterly.
Reporting Dimensions: • Company • Type of Record (end user or access) or Invoice (resale, UNE or interconnection services)	**Excluded Situations:** • None
Data Retained Relating To CLEC Experience: • Report Month • Record Type or Invoice Type • Number of Records With Errors • Number of Records Delivered	**Data Retained Relating To ILEC Performance:** • Report Month • Record Type or Invoice Type • Number of Records With Errors • Number of Records Created
Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Greater than 98% of usage records transmitted, by usage type, reflect the agreed upon format and contain complete information. • Greater than 98% of wholesale bills, by invoice type, are accurate.

Service Quality Measurements
Measurement Detail

Operator Services,/Directory Assistance & Listings (OS, DA & DL)

Function:	Speed To Answer/Review Period for Directory Listings
Business Implications:	The speed of answer delivered to CLEC retail customers, when the ILEC provides Operator Services or Directory Services on behalf of the CLEC, must be no slower than the speed of answer that the ILEC delivers to its own retail customers of equivalent local services. The average amount of hold time that CLEC customers experience also must not be longer than it is for ILEC customers. In addition, CLECs must be provided the same opportunity to review directory listing updates to catch any errors before publication in white pages directories.
Measurement Methodology:	**Mean Time To Answer =| Σ(Date and Time of Call Answer) - (Date and Time of Call Receipt)|/(Total Calls Answered on Behalf of theCLECs in Reporting Period)** **Mean Time Allotted to Proof Listing Updates Before Publication = |Date &Time of Directory Publication Deadline) – (Date and Time Updates Available for Proofing|/(Total Number of Updates Provided for Proofing During Reporting Period)** **For CLEC Results:** Speed of answer is monitored through the call management technology used to distribute calls to ILEC agents supporting CLEC activities (i.e., call receipt personnel staffing Directory Assistance or Operator Service Positions). Speed of Answer is determined by measuring and accumulating the elapsed time from the entry of a CLEC retail customer call into the ILEC call management system queue until the CLEC retail customer call is transferred to the ILEC personnel assigned to handling CLEC calls for assistance (whether DA or OS). The elapsed time is measured in seconds and tenths of seconds rounded to the nearest tenth of a second. Time Allotted To Proof Listing Updates encompasses the amount of review time afforded to CLECs for the purposes of validating directory listings prior to directory publication. If electronic access permits a CLEC to view, on demand, its customers' listings as they will be published, then this measure is not necessary. An interface availability measurement, however, should be included within the reporting dimensions for the "General" OSS systems measurements. The directory proofing interval information should be captured and retained for each directory published. The interval is measured from the date and time the CLEC receives a final listing of customer-related information that will be contained within the ILEC's next directory publication to the final date and time for submission of changes to the listings provided. **For ILEC Results:** Identical to process described for the CLEC with the clarification provided below. **Other Clarifications and Qualifications:** • The "speed to answer" measure is directly analogous to speed of answer minimum service standards established within many states. • Results must be reported separately for CLECs that use facilities-based interconnection, as customer calls to OS and DA will arrive at the operator center on unique facilities. For CLECs that use common facilities to deliver customer calls to the operator center, results may be reported for the CLEC industry in aggregate until the capability to measure specific CLEC results exists.

Service Quality Measurements
Measurement Detail

	• See the "Center Responsiveness" measurement for the treatment of situations where ILEC call management technology cannot measure speed of answer on a call basis from receipt to answer.
Reporting Dimensions:	**Excluded Situations:**
• Company • Operator Services By Center • Directory Assistance By Center • Directory Listings By Directory Note: OS/DA Speed to Answer is to be CLEC-specific if technically feasible.	• Call abandoned by customers prior to answer by the ILEC OS or DA operator
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Month • Type of Measurement (OS Calls, DA Calls or Directory Listing • Center Identifier (or Directory ID for DL) • Mean Speed of Answer (OS & DA only) • Standard Error for Mean Speed of Answer (OS & DA only) • Number of Calls Answered (OS & DA only) • Directory Close Date (DL only) • List Availability Date (DL only)	• Month • Type of Measurement (OS Calls, DA calls or Directory Listings) • Center Identifier (or Directory ID for DL) • Mean Speed of Answer (OS & DA only) • Standard Error for Mean Speed of Answer (OS & DA only) • Standard Error for Mean Speed of Answer (OS & DA only) • Directory Close Date (DL only) • Listing Availability Date (DL only)
Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • More than 90% of calls answered by a "live" agent, separately for OS and DA services, within 10 seconds. • All calls answered by a Voice Response Unit, separately for OS and DA services, within 2 seconds. • Directory Listing review time may be no more than 4 hours less than the ILEC's.

Service Quality Measurements
Measurement Detail

Network Performance (NP)

Function:	**Interconnect Traffic Engineering/Trunking Capacity**
Business Implications:	When customers place calls, they expect that their calls will go through. Likewise customers also expect that other callers will be able to reach them without having their calls blocked. In order to ensure that CLEC customers do not experience greater blocking to and from their lines than ILEC customers do, it is necessary to measure and compare blocking rates for ILEC and CLEC trunk usage. Overall trunk blocking experienced by ILEC and CLEC customers must be measured because blockage on common trunks affects a greater percentage of CLEC total traffic than ILEC total traffic. The ILEC's greater build out of Direct End Office Trunking (DEOT), using common trunking mostly for overflow traffic from DEOTS, creates the disparity. Common trunks carry a greater percentage of CLEC traffic because of the CLECs' reliance on tandem interconnection as their networks are built out. The reliance not only is an economic choice based on 'start-up' traffic volumes, but also results from ILEC restrictions on direct end office connections. Blocking measurements, as recommended below, or any call completion comparisons for dedicated final interconnection trunks do not tell the whole story of network capacity. Timely delivery of interconnect trunks and augments based on CLEC traffic projections rather than current utilization is also significant to the capacity parity issue and is discussed further in the order completion interval section. To protect their customers and their reputations, CLECs keep blocking levels under control on dedicated trunks by holding up new off-net and on-net customer orders. Installing new customers before ILECs have provided adequate trunking capacity, in line with CLEC forecasts and actual business requirements, can degrade service to existing and new CLEC customers.
Measurement Methodology:	**% Call Completion: [(Total number of blocked call attempts (separate measures for inbound and outbound) during the busy hour)/Total number of call attempts during busy hour)] x 100** **For CLEC Results:** For determining outbound call blocking, the number of CLEC customer call attempts, where the customer dials a valid telephone number, is accumulated for the reporting period. The number of blocked call attempts experienced by CLEC customers, where a call to a valid telephone number was not completed by the network because of ILEC-controlled capacity limitations or other ILEC network trouble, also is accumulated during the reporting period. At the end of the reporting period, the total number of blocked attempts is divided by the total number of attempts, and the ratio is expressed as a percentage. For inbound calling, the results will measure calls originating on the ILEC's network and blocked from terminating on the CLEC's network. **For ILEC Results:** The approach is identical to that described for the CLEC, except that the network performance is measured only for representative ILEC service configurations. **Other Clarifications and Qualifications:** CLECs may agree to call completion reports in lieu of or in addition to blocking reports.

Service Quality Measurements
Measurement Detail

Reporting Dimensions:	Excluded Situations:
• Trunk Capacity Type (DSO, DS1, DS3, etc.) • Dedicated Trunk Groups • Common Trunk Groups Where CLEC/LD Traffic Share Common ILEC Trunks. • Common Trunk Groups where CLEC traffic traverses a separate common network from ILEC traffic. • Availability of 7-digit call back-up to PSAP location • E911/911 Trunk Groups • OS/DA Trunk Groups • By Switch (Serving CLEC) for CLEC • By Switch (Serving CLEC) for ILEC • Company • Geographic Scope	• None.
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • By Switch (Serving CLEC) for CLEC • Trunk Capacity Type • Trunk Group Identifier • Geographic Identifier • Busy Hour and Day • Calls Attempted • Calls Blocked	• Report Month • By Switch (Serving CLEC) for ILEC • Trunk Capacity Type • Trunk Group Identifier • Geographic Identifier • Busy Hour and Day • Calls Attempted • Calls Blocked
Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: Engineering Parameters: • Dedicated Trunk Groups: Not to exceed blocking standard of B.01 • Common Trunk Groups: (1) Where CLEC/LD traffic share common ILEC trunks: No more than 1% of end offices may have more than 2% blockage a month based on the Erlang-B.01 scale. (2) Where CLEC traffic traverses a separate common network from LEC traffic: No more than 2% of end offices may have more than 2% blocking.

Service Quality Measurements
Measurement Detail

Function:	**Reporting Network Outages**
Business Implications:	Both CLECs and ILECs must be made aware of major network events in order to notify customers and regulatory agencies (e.g. E-911 agencies, FAA, and other key customer accounts). To that end, the ILECs must provide the CLECs with timely and detailed information (pertaining to a network incident) to afford CLECs the opportunity to make prudent business decisions regarding management of their own customer base and networks. For example, the ILEC would inform the CLEC that the network incident was caused by a cable cut at a specified location.
Measurement Methodology:	**Mean Time to Notify CLEC = Σ[(Date and Time ILEC Notified CLEC network incident) - (Date and Time ILEC detected network incident)] / Count of Network Incidents.** **For CLEC Results:** The results will be based on the time it takes for the ILEC's Centralized Control Center to notify the CLEC and ILEC of a customer impacting network incident in equipment utilized by the CLEC. When the ILEC's Centralized Control Center becomes aware of the network incident, they must electronically notify both the ILEC and the CLEC. The notification time for each outage will be measured in minutes and divided by the number of outages for the reporting period. **For ILEC Results:** Same computation as for the CLEC.

Reporting Dimensions:	**Excluded Situations:**
• Company • Type of Event - By each Reportable Incident Grouping (See Attachment A) • By Switch and Tandem	• None

Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • Type of Event • Meantime to notify CLEC • Number of Events • Geographic Scope Indicator	• Report Month • Type of Event • Mean Time to Detect Event • Number of Events • Geographic Scope Indicator

Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Electronic Notification Procedures are required for real-time network incident reporting from ILEC to CLEC. • Manual reporting processes may be required until OSS Interfaces become operational.

Service Quality Measurements
Measurement Detail

Function:	**Network Performance Parity**
Business Implications:	The perceived quality of CLEC retail services, particularly when either ILEC services are resold or UNE combinations are employed, will be heavily influenced by the underlying quality of the ILEC network performance. Customers experience the network quality of the service provider each time services are used. This metric, when collected for both the CLEC and ILEC and then compared, will help show whether CLEC network performance is at least at parity with ILEC network performance.
Measurement Methodology	**Network Performance Parity = Σ(Network Performance Parameter Result)/(Number of Tests Conducted)** **For CLEC Results:** Based upon a random and statistically reliable (at a preset level) sample of network configurations employed by the CLEC, the network performance parameter (as indicated in the reporting dimension) is monitored based upon generally accepted testing procedures and the resulting parameter value(s) recorded. The measured values are accumulated across the sample base and the mean and associated variance computed. **For ILEC Results:** The approach is identical to that described for the CLEC, except that the network performance is measured only for representative ILEC service configurations.

Reporting Dimensions:	**Excluded Situations:**
• Transmission Quality (See Appendix A)	• None
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • Reporting Dimension • Mean Performance Result • Standard Error of Mean Performance • Number of Data Points • Geographic scope	• Report Month • Reporting Dimension • Mean Performance Result • Standard Error of Mean Performance • Number of Data Points • Geographic scope

Performance Standard in Absence of ILEC Results	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Performance Standards in this area are yet to be published.

Service Quality Measurements
Measurement Detail

Collocation Provisioning (CP)

Function:	Collocation Provisioning
Business Implications:	CLECs need to receive timely responses describing the price and availability of collocation space and ontime provisioning of collocation arrangements. CLECs also need the timely offering of alternatives to physical collocation and virtual collocation. Where ILECs run out of physical collocation space, they may develop suitable space. CLECs also may prefer more cost-efficient alternatives that afford control over their own equipment and may seek alternative arrangements from ILECs. The speed at which these alternative arrangements (i.e. leasing GR-303 compliant access concentration equipment as an unbundled network element or backhauling to a neighboring central office) are offered and provided also is critical to CLECs obtaining a meaningful opportunity to compete in local markets.
Measurement Methodology:	**Mean Time To Respond To Collocation Request = Σ [(Request Response Date) – Request Submission Date)]/Count of Request Responses Issued** **Mean Time To Provide Collocation Arrangement = Σ [(Date & Time Collocation Arrangement is Complete) – (Date & Time Collation Application Submitted)]/Number of Collocation Arrangements Completed** **% Due Dates Missed = (Number of Orders Not Completed By ILEC Committed Due Date)/Total Number of Orders Completed During the Reporting Period** **For CLEC Results:** Mean Time to Respond to Collocation Request: The response interval for each space request is determined by computing the elapsed time from the ILEC receipt of a collocation request (or inquiry) from the CLEC, to the time the ILEC returns the requested information or commitment to the CLEC. Elapsed time is accumulated for each type of collocation space request, and then divided by the associated total number of collocation requests received by the ILEC during the report period. Mean Time To Provide Collocation Arrangements: The interval is the elapsed time from the ILEC's receipt of an order for collocation (from the CLEC) to the ILEC's return of a valid completion notification to the CLEC. Elapsed time for each order is then divided by the associated total number of collocation orders completed within the reporting period for each type of collocation. The measurement is similar to the Average Completion Interval for resold services and unbundled network element orders and could be reflected as a separate category of that measurement. % Due Dates Missed: For each type of collocation, both the total numbers of orders completed within the reporting interval and the number of orders completed but missing the committed due date (as specified on the initial confirmation returned to the CLEC) are counted. The resulting count of orders completed later than the committed due date is divided by the total number of orders completed. The measurement is similar to the % Completed on Time for resold services and unbundled network element orders and could be reflected as a separate category within the % Completed on Time measurement. **For ILEC Results:** The ILEC computation is identical to that for the CLEC for provision of collocations to ILEC affiliates. Largely, however, tariff and contract standards will be the benchmarks that ILECs must meet for a parity determination.

Service Quality Measurements
Measurement Detail

	Their vast number of end offices compared to CLECs' switch deployment make it difficult to develop the appropriate analog. **Other Clarifications and Qualifications:** • Elapsed time is measured in days and hours. • A response to the collocation request will only be considered to be "received" if it is a thorough and actionable plan (i.e., a simple "yes" or "no" is not sufficient). • Questions about the CLEC's collocation request also do not count as a "received response."
Reporting Dimensions:	**Excluded Situations:**
• Company • Type of Collocation • Geographic Scope	• CLEC cancellations or requested delays.
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • Request Identifier (e.g., unique tracking number) • Date and Time of Request receipt by ILEC. • Request type (per reporting dimension) • Response Date and Time • Committed Delivery Date and Time • Actual Delivery Date and Time • Response Date and Time • Geographic Scope	• Report Month • Request Identifier • Date and Time of Request Receipt by ILEC • Response Date and Time • Committed Delivery Date and Time • Actual Delivery Date and Time • Geographic scope
Performance Standard in Absence of ILEC Results	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • All responses must be provided in 5 business days unless contract/tariff interval is shorter. • All collocations must be provided within the applicable contract or tariff intervals. • No less than 98% of commitments must be met for Physical, Virtual and other alternative collocation offerings.

Service Quality Measurements
Measurement Detail
Database Updates (DU

Function:	Database Updates
Business Implications:	CLECs must rely on ILEC databases in order to provide accurate E911/911 services, directory listings, directory assistance, and operator services. ILECs currently control the updating of many essential databases, such as the Line Information Database (LIDB); directory listings, E911 Automatic Location Identifier (ALI), Master Street Address Guide (MSAG) and selective routing databases. In addition, accurate and timely loading of NXXs before the LERG (Local Exchange Routing Guide) effectiveness date is vital to CLEC customer's receiving calls from ILEC customers, and it is essential to ensure that customers are charged correctly for local and toll calls. Routing of CLEC's NXXs at the tandem and central office to the proper Public Safety Answering Point (PSAP) for emergency calls also is critical to E911/911 service. Disparity in timely and accurate updates of the above databases can lead to annoying, costly and possibly "life and death" situations for CLEC customers.
Measurement Methodology:	**Average Update Interval = Σ [(Completion Date & Time of Database Update) – (Submission Date and Time of Database Change)]/Total Number of Updates Completed During Reporting Period** **% Update Accuracy = [Number of Updates Completed Without Error)/(Number Updates Completed)] x 100** **For CLEC Results:** Average Update Interval: The actual update interval is determined for each update processed during the reporting period. It is the elapsed time from the ILEC receipt of a syntactically correct transaction from the CLEC to the ILEC's accurate completion of updating all databases affected by the CLEC activity. Elapsed time for each update is accumulated for each affected database (e.g., E911/911, LIDB, Directory and Directory Listings). The time required to update each database is accumulated and then divided by the associated total number of updates completed within the reporting period. % Update Accuracy: For each update completed during the reporting period, the original update that the CLEC sent to the ILEC is compared to the Database following completion of the update by the ILEC. An update is "completed without error" if the database completely and accurately reflects the activity specified on the original and supplemental update (e.g., orders) submitted by the CLEC. Each Database (e.g., E911/911, LIDB, Directory and Directory Listings) should be separately tracked and reported. **For ILEC Results:** The ILEC computation is identical to that for the CLEC with the clarifications noted below. **Other Clarifications and Qualification:** • For LIDB, the elapsed time for an ILEC update is measured from the point in time when the ILEC's file maintenance process makes the LIDB update information available until the date and time reported by the ILEC that database updates are completed. • Results for the CLECs are captured and reported at the update level by Reporting Dimension (see below).

Service Quality Measurements
Measurement Detail

	• The Completion Date is the date upon which the ILEC issues the Update Completion Notice to the CLEC. • If the CLEC initiates a supplement to the originally submitted update and the supplement reflects changes in customer requirements (rather than responding to ILEC initiated changes), then the update submission date and time will be the date and time of ILEC receipt of a syntactically correct update supplement. Update activities responding to ILEC initiated changes will not result in changes to the update submission date and time used for the purposes of computing the update completion interval. • Elapsed time is measured in hours and hundredths of hours rounded to the nearest tenth of an hour. • Because this should be a highly automated process, the accumulation of elapsed time continues through off-schedule, weekends and holidays; however, scheduled maintenance windows are excluded.

Reporting Dimensions:	**Excluded Situations:**
• Company • Database Type	• Updates Canceled by the CLEC • Initial update when supplemented by CLEC • ILEC updates associated with internal or administrative use of local services

Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • Database Type • Update Submission Date • Update Submission Time • Update Completion Date • Update Completion Time • Reporting Dimension • Geographic Scope	• Report Month • Database Type • Mean Interval for Update • Standard Error of Mean • Number of Updates • Number of Updates With Errors • Geographic Scope

Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • 99.99% completed in 24 hours or 100% completed by LERG effective date. • 99.99% accurate

Service Quality Measurements
Measurement Detail

Interconnection/Unbundled Elements and Combinations (IUE)

Function:	**Availability of Network Elements**
Business Implications:	As CLECs use individual elements and element combinations to deliver unique services, UNE functionality must operate properly to ensure that those elements support quality retail services. This measure monitors individual network elements or element combinations to ensure that CLECs have a meaningful opportunity to compete through access to and use of element (or combination) functionality.
Measurement Methodology	**Function Availability[1] = (Amount of Time[2] a Functionality is Useable[1] by a CLEC in a Specified Period)/(Total Time[2] Functionality Was Scheduled To Be Useable)** **Notes:** **1. These measurements may also be expressed in the negative, that is, in term of unavailability.** **2. In some instances, rather than time, the availability will be expressed in terms of transactions executed successfully compared to transactions attempted.** **For CLEC Results:** Availability will be measured for each unique UNE functionality (or combination of UNEs). The number of times that the functionality executes properly will be shown in comparison to the number of times that the execution of the functionality was requested or initiated. Availability can apply to both physical and logical (e.g., database) elements. Physical element availability (e.g., links to databases, dedicated transport, etc.) will typically be expressed as the percent of time that the functionality is useable compared to the total time in the period being observed. "Useable" means that, when monitored, the element indicates readiness to operate (e.g., an electrical (or equivalent) continuity is detected, expected signaling is returned, etc.). Logical element availability will typically be expressed in terms of the number of transactions successfully executed (e.g., successful database updates, success query responses) compared to the number of transactions attempted. Illustrative examples of availability measures are shown below • A-link: minutes unavailable per year • D-link: seconds unavailable per year • Databases: percentage of queries receiving a response • Databases: percentage of queries experiencing a return of unexpected values **For ILEC Results:** Identical measurements are performed where the ILEC employs the same or reasonably comparable functionality. Where such analogs do not exist, the ILEC is expected to establish benchmark performance levels jointly with the CLEC requesting the functionality. **Other Clarifications and Qualification:** • The preceding list of elements is illustrative and is not to be considered exhaustive • ILEC failure to provide comparably timely performance when using comparable functionality constitutes discriminatory access. Where comparable functionality is not employed, failure to meet or exceed parameters negotiated with the CLEC also is discrimination. • For each element or element combination requested, where a retail analog is not identified, the ILEC is expected to establish both an availability measure and an availability standard (ILEC functional analog or benchmark) unless the CLEC waives its right for such a measure.